

the tip of the ear there is a fringe of short whitish hairs. Whiskers mostly white, the upper series black, with grey tips. The hands and feet are well clad above with whitish hairs; below the palms are bare, and the soles are covered with fine white hairs. The tail is short and cylindrical, only diminishing slightly in calibre towards the tip; it is uniform in colour above and below, and is very scantily clad with pale isabelline hairs; at the tip of the tail is a pencil of long pure black hairs.

The upper incisors are grooved as usual; the first and second upper molars have the transverse ridges forming the crowns of the teeth united in the middle, as in *G. hurrianae*, *G. psammophilus*, *G. nanus*, &c. (*Rhombomys* of Wagner), and the third upper molar has no second posterior ridge or talon, as in *G. indicus* and *G. erythrurus*.

The animal, though not very old, appears to be quite full-grown.

I have failed to identify this specimen with any described species of *Gerbillus*, and have therefore ventured to name it after Lieut.-Col. C. Swinhoe, who collected it.

PROCEEDINGS OF LEARNED SOCIETIES.

DUBLIN MICROSCOPICAL CLUB.

January 20, 1881.

A Black Soot-like Fungus, resembling Torula pinophila, occurring on the Stoppers of Glycerine Bottles.—Prof. M'Nab exhibited a fungus found in the Botanical Laboratory at Glasnevin, upon the stoppers of bottles containing glycerine. The extremely dilute glycerine which moistens the stoppers catches and retains a black soot-like fungus, which seems to have some affinity with *Torula pinophila*, the soot-like fungus of spruce-firs. The subject is one which requires more investigation.

Pitchstone from Dyke near Newry.—Prof. Hull exhibited a thin section of pitchstone from the well-known dyke of that rock near Newry, which is marked on Griffith's geological map of Ireland (1855), and which (according to Dr. Frazer, who possesses specimens of the rock) was first discovered by the late General Portlock. The rock is of a dark bluish-grey colour, compact and vitreous, containing numerous crystalline grains or blebs of quartz, a few crystals of orthoclase (sanidine) sometimes in twins, and a few little black specks of magnetite. It is traversed by numerous parallel joint-planes dividing the whole rock into plates about $\frac{1}{8}$ inch across. These

planes are so fully developed that the rock is exceedingly friable in consequence.

With a two-inch objective and the aid of the polariscope the paste is seen to be truly vitreous, as it becomes dark when the Nicol prisms are crossed. At the same time the quartz and felspar crystals polarize vividly.

With a magnifying-power of 400–500 diameters numerous micro-liths appear. A few with parallel sides suggest the forms of apatite prisms, others are probably of pyroxenic origin; there are also cellular spaces of amorphous matter. But the most noticeable appearances are those of stellate forms, generally originating in a centre and shooting out sharp-pointed needles in various directions. Somewhat similar forms are described by Rosenbusch from the obsidian of Greenland*, and by Allport from the pitchstone of Arran in Scotland†. These latter differ from those observed by the author in the fact that they polarize distinctly, and are considered by Mr. Allport to be forms of pyroxene. Those in Prof. Hull's section, however, do not polarize‡, but with crossed Nicols entirely disappear from view along with the vitreous paste of the section. These forms, together with the absence of polarization, suggested that in the present instance they are those of shrinkage fissures originating in various centres during the cooling process, not those of crystalline bodies.

A new Sarcodine, possibly to be referred to the Genus Microgromia.
—Mr. Archer showed examples of a very minute monothalamous freshwater Rhizopod, not very uncommon in moor-pools, but yet not hitherto recorded. Owing, however, to the fact that never yet was he able to alight on even a single example exhibiting pseudopodia, he was actually unable to refer this form definitely to a particular genus out of, say, three, to some one of which it might *à priori* belong. These were *Nebela*, *Hyalosphenia*, or *Microgromia*; Mr. Archer, however, for the present at least, felt inclined to suppose that in the last it would most probably find its most fitting location. The test in this form is very minute, membranous, as it were, somewhat crumpled, balloon-shaped or pyriform, with a comparatively thick neck, its circular opening with a distinctly marked, slightly thickened rim; the test, when young, colourless, but brownish eventually; the body-mass granular and faintly bluish in tint, though it might be called “colourless,” and with a posterior nucleus. Were such a form as this to be seen to project even a single, ever so short, sharply bounded, pellucid, “finger-like” pseudopodium, it would doubtless fall under *Nebela* (*Diffugia* in part); but if so, it would be by far the most minute form known referable thereto; or its hyaline test might suggest *Hyalosphenia*. Its very small size alone would suggest *Microgromia*; but still the larger examples are, by comparison, a good deal larger, and with a

* Mikrosk. Phys. Band i.

† Geol. Mag. vol. ix.

‡ This fact was witnessed by several members of the Club present. In one instance the light appeared through the sides of the needle.

considerably longer "neck" than *Microgromia socialis* (Archer), Hertwig, and still more so than *Microgromia mucicola*, Archer, the little form found nidulating in the enveloping mucous of the alga *Dimorphococcus lunatus*, or more especially in the alga of similar habit formerly referred by Mr. Archer to *Dictyosphaerium* (but erroneously) and called *D. constrictum*. If, then, this Sarcodine had been seen projecting even ever so short pseudopodia of "reticulate" character, its genus would be decided; but, as mentioned, it has never been seen to emit any. All in this way that it ever has shown is but a slight "overflow" of the sarcode from the frontal aperture, this projecting quantity of sarcode with a "fuzzy" or somewhat torn-like margin. Now this sort of margin presents more of the "Gromian" aspect, or that which is seen in such forms before pseudopodia begin to be given off at length or in quantity—Diffflugian Rhizopods presenting, on the other hand, a smooth, sharp outline before and during the emission of their pseudopodia. Add to this the fact that when this sarcodine presents itself in a gathering, it is mostly in some numbers, showing thus a good deal of a gregarious tendency, though it need not be said they do not occur combined "socially," like *Microgromia socialis*, by means of inosculating pseudopodia, and the idea that this form may prove to belong to *Microgromia* becomes slightly strengthened. "Conjugated" examples, however, are not infrequent, the mouths of the tests in close approximation. Such an example Mr. Archer was able to place under the microscope, and this too showed the by no means infrequent circumstance that the whole combined sarcode-mass of the two so joined examples had become balled together into a single globular "spore-like" encysted body occupying the globose base of one of the tests, this possibly destined to give origin another day to "zoospores." Were this form to have been seen issue linear (that is to say "Euglyphan") pseudopodia, it would fit into Schulze's genus *Platoun*; but having waited on it from time to time so long, Mr. Archer regarded this as most unlikely. For the reasons indicated, therefore, he felt most inclined to relegate this puzzling little form to *Microgromia*, at least *ad interim*, it possibly remaining as *Microgromia ambigua*; if it should stay there, the genus would consist of three species, all of which Mr. Archer had been the first to detect.

Stichococcus minor, Nägeli?—Dr. E. Perceval Wright exhibited examples of a chlorophyllaceous unicellular alga, identified by Dr. Wittrock as *Stichococcus minor*. He also showed examples of an alga forming a green coating on drowned flies, which appeared to be quite the same form as the foregoing; but, owing to the complete rotundate, in no way elongate figure, of the cells in both instances, it appeared very doubtful that either should be relegated to the genus *Stichococcus*, Nägeli, at all.

February 17, 1881.

Aleyonaria.—Dr. E. Perceval Wright exhibited the spicules of two very beautiful new species of *Aleyonaria* from the collection

made by the 'Challenger' expedition, belonging to the group of the Primnoadæ. These spicules were feebly calcareous, longer than broad, and smooth on their edges.

Cerebellar Cortex, Cerebral Cortex, and Gastric Mucous Membrane stained with Klein's Cochineal Fluid, and its Formula.—Dr. R. J. Harvey showed specimens of cerebellar cortex, cerebral cortex, and gastric mucous membrane stained with Klein's cochineal fluid. The preparation of and *modus operandi* with this fluid are exceedingly simple. One per cent. of alum and cochineal in distilled water are boiled to four sevenths of the original volume; when cool, a few drops of carbolic acid are added and the liquid filtered. Sections will stain well in three or four hours, but will not be injured if left twenty-four hours. They require nothing but washing in distilled water. The branching processes of Purkinje's cells in the cerebellum, the connexion of the kite-shaped cells of the cerebral cortex, and the "chief" and "investing" cells of the gastric mucous membrane were rendered especially evident by this method.

Conceptacles of Xylaria polymorpha, the spores with two nuclei, one, or no nucleus.—Mr. Greenwood Pim exhibited sections of the conceptacles of *Xylaria polymorpha* showing the asci and spores. He drew attention to the fact that some of the spores presented two nuclei, some a single nucleus, and some were even destitute of any nucleus, and observed that this character, of considerable value amongst Pezizas, failed in the Xylarias.

Staurastrum, nov. spec.—Mr. Archer showed examples of an undescribed *Staurastrum*, which, so far as he was aware, had not been found out of Connemara, and there it was rare. It somewhat resembles *St. maanense* plus horns, these slender, sometimes furcate, and more or less dissimilar, the crenatures on the margins of the semicells smaller and less pronounced. Of this distinct form Mr. Archer would defer a description. This had so long stood as the "Horned" *Staurastrum*, it might probably remain as *Staurastrum cornutum*.

Testis of Hirudo.—Prof. Mackintosh exhibited cross sections of the testis of *Hirudo medicinalis*, showing the axis from which budded off the mother cells of the spermatozoa, which were seen in various stages of development.

March 23, 1881.

Capnodium Footii.—Mr. Greenwood Pim showed specimens of *Capnodium Footii* from Stephanotis-leaves, and of *C. citri* from orange-leaves. The chief interest in these somewhat obscure leaf-parasites turned on the fact that an action had recently been brought in Scotland against the Shotts Iron Co. to restrain them from smelting iron within a certain distance of the extensive and valuable plantations belonging to the Lord President of the Court of Session. The defence tried to show that the black deposit on the

leaves was due to some form of *Capnodium* or *Fumago*, but failed to prove their case.

Torula pinophila.—Dr. M'Nab exhibited specimens of *Torula pinophila*, Chev. (*Antennaria pinophila*; Nees ab Es.), obtained abundantly on healthy spruce-firs growing in Glasnevin Botanic Garden. The fungus seems to live on the bud-scales, and only extends to the stems and leaves under exceptional circumstances. It was met with both in the conidial (*Torula*) stage and in the Coniothecium condition. The fungus was identical in all its characters with that observed at Glencorse, near Edinburgh.

Chlorochytrium Cohnii.—Dr. E. Perceval Wright showed living specimens of this green unicellular Alga, exhibiting the various stages of the division of the protoplasmic cell-contents, fuller details of which he hoped to publish shortly.

Conjugated State of a Compressed or Two-angled Form of Staurastrum pterosporum, Lundell.—Mr. Archer showed the zygospore of *Staurastrum pterosporum*, Lundell, especially remarkable inasmuch as nearly all the examples which occurred in the gathering were compressed (that is, two-angled), not three-angled, in the end-view; that is to say, they conformed to the character ascribed to the genus *Arthrodesmus*. And, indeed, in the eyes of some observers, these would doubtless be regarded as *Arthrodesmus incus*, "forma;" but how erroneously, the present conjugated examples demonstrated. There could be little doubt but several really distinct species are confused together under the designation *Arthrodesmus incus*; but perhaps only a couple have shown their zygospores, and no doubt these agree in the main, being simply orbicular and beset by not very numerous, but comparatively long, subulate, acute spines. However like the present parent form might be to *A. incus*, yet Mr. Archer must say he would have hesitated to so designate them, and so by some might possibly be regarded as running away with a pet idea. But let us, looking down the microscope, discuss the matter as we like, and come to varied conclusions, the little desmid knows better, and, our disputations notwithstanding, just runs its own specific course. Forget to develop a third angle during vegetative growth it may; but forget that it is all the time in reality not *A. incus*, or any form of it at all, when it comes to produce its zygospore, it would seem it cannot; it accordingly fashions its zygospore into a compressed cushion-like figure, oblong, the angles somewhat dilated into a wing-like appendage, this remaining still within the parent half-cells, and retaining them at the angles; for in truth it is just *Staurastrum pterosporum* all the time, a species very aptly named by Lundell. The first to exhibit the triangular (Lundell's) form conjugated in this country was our member Mr. Crowe, the examples, so far as Mr. Archer remembered, being from the Rocky Valley, near Bray. Just as there is, then, an *Arthrodesmus*-like (that is, a compressed) form of *St. pterosporum*, so

there is a similar form of the closely resembling *Staurastrum O'Mearii*. Such cases tend to confirm the conclusion that *Arthrodesmus*, as a genus, cannot stand; still the species relegated to *Arthrodesmus* stand, *per se*, very good indeed. They show that there is as little reason for a separate genus for two-angled *Staurastra* as for the three- or four- or five-angled, as distinguished from one another.

Sections of Fœtal Vertebrae.—Dr. Harvey showed a section of fœtal vertebrae stained with purpurine. All the effects for which double staining had been so much recommended of late, in studying the process of ossification in cartilage, are brought out by this dye. The cartilage matrix remains unstained, the new territories of bone-substance assume a distinct though somewhat pale hue, while all the cells (cartilage-cells, bone-cells, osteoblasts, and marrow-cells) become brilliantly stained.—Mr. E. G. Hull subsequently showed a transverse section through the medulla of a human fœtus at full term, at the level of the apex of the calamus scriptorius (lower apex of fourth ventricle), showing the nuclei of the vagus and hypoglossal nerves (respiratory centre).

Tetraploa aristata exhibited.—Mr. Pim showed examples of *Tetraploa aristata* from dead Pampas-grass stems in his garden. This is a very rare Torulaceous fungus. It appears to consist of about eight cells, superposed two and two; from each of the upper four arises a long bristle or awn, the whole forming a pretty and singular object.

Structure of Micaceous Dolerite from Slieve Gullion.—Prof. Hull, F.R.S., exhibited a thin section of micaceous dolerite from Slieve Gullion, a mountain on the borders of Armagh and Louth rising 1893 feet above the sea. The rock occurs in association with quartziferous porphyry, and is probably of volcanic origin, belonging to a period more ancient than the Miocene lavas of co. Antrim. It is represented on the map of the Geological Survey, sheet 59. It is a rock of rare occurrence, as it is seldom that mica and augite are associated as essentials together in the same rock. It is largely crystalline-granular, and of a dark colour.

With a low magnifying-power and the aid of the polariscope the slice presents a very beautiful appearance, as all the minerals polarize more or less vividly. The following were observed:—

1. *Orthoclase*, in large crystals, rare.
2. *Plagioclase*, probably Labradorite, in long plates and prisms, perfectly crystallized, and indenting the augite. Some small crystals are seen enclosed in the latter mineral, which was consequently later in consolidating.
3. *Augite*, in large coloured patches without crystalline form, indented by the crystals of felspar.
4. *Mica*, easily recognizable in hand-specimens, and equally abundant with augite, from which it may be distinguished in the thin section by its parallel cleavage-planes.

5. *Olivine*, in small grains and crystals, occurring generally in groups imbedded in those of felspar. They are easy to distinguish by their form and polarization; and, though fresh and unaltered in the interior, they are bounded by a thick band of brown ochreous matter, due to decomposition.

6. *Magnetite*, in minute grains and small quantity, visible with a 1-inch objective.

The order of crystallization appears to have been:—first, magnetite and olivine; second, the felspars; third, mica; and last, augite. It was remarkable that in a rock of probably Mesozoic age the minerals should be so slightly (in most cases not at all) altered.

MISCELLANEOUS.

Observations on Siredon lichenoides. By WILLIAM E. CARLIN.

COMO LAKE, U. S., is a body of water about two miles and a half in circumference. It has no known outlet, but is fed by a stream of pure spring-water about two feet wide and a foot deep, which, continually running, prevents the lake's absorption by evaporation. The lake is quite shallow, and can be easily waded at almost any part, being not more than 10 feet deep in the deepest place that I have been able to find. The bottom of the lake is soft, and is covered in most places with grass and weeds. The water is strongly impregnated with alkali; and a large number of cattle are said to have died a number of years ago from drinking it. It is very disagreeable to the taste. The amount of water varies about 14 inches during the year, being highest in the spring, from the melting snow, and lowest in the autumn. This is the home of the *Siredon lichenoides* (Baird). They never enter the stream of fresh water, preferring the alkali water of the lake. They seem to suffer no inconvenience, however, if placed in fresh water. I have caught as many as a hundred and fifty, and placed them in a cauf, and have never had one die from the change. The change to fresh water undoubtedly hastens the metamorphosis into the *Amblystoma* form, as I have noticed quite a change in the course of twenty-four hours in individuals placed in the cauf, while an equal number kept in the alkali water in the boat have shown no change in any of them in several days. I have kept six at different times in jars of fresh water until they have completed their metamorphosis. I made no systematic note of appearance from day to day; but my observation was careful and regular. In two cases the change in external appearance was so abrupt that I should have been almost certain that another salamander had been substituted for the one in the jar, had I not had him so completely under observation that it was impossible. The gills had assumed a stubby form about half the length that they were the night before; and the gill on the back of the body was nearly